

Montana Board of Oil and Gas Conservation Environmental Assessment

Operator: XTO Energy, Inc.
Well Name/Number: Sherlock13X-24
Location: NW SW Section 24 T23N R58E
County: Richland, MT; **Field (or Wildcat)** Wildcat

Air Quality

(possible concerns)

Long drilling time: No, 25-35 days drilling time.

Unusually deep drilling (high horsepower rig): A triple derrick rig to drill a single lateral Bakken Formation Horizontal Lateral, 19,987' MD/10,414' TVD.

Possible H₂S gas production: Slight chance of H₂S.

In/near Class I air quality area: No, not in a Class I air quality area.

Air quality permit for flaring/venting (if productive): Yes, DEQ air quality permit required under rule 75-2-211.

Mitigation:

☒ Air quality permit (AQB review)

☒ Gas plants/pipelines available for sour gas

☐ Special equipment/procedures requirements

☐ Other: _____

Comments: Existing pipeline for H₂S gas and sweet gas in the area.

Water Quality

(possible concerns)

Salt/oil based mud: Yes to intermediate casing string, oil based invert based drilling fluids. Horizontal lateral will be drilled with produced brine water. Surface casing hole to be drilled with freshwater and freshwater mud.

High water table: No high water table anticipated.

Surface drainage leads to live water: No, closest drainage is Brorason Creek, about 1/4 of a mile to the west from this location. Brorason Creek is a tributary to Lone Tree Creek, a tributary drainage to the Yellowstone River, about 5/8 of a mile to the south from this location.

Water well contamination: None, surface hole will be drilled with freshwater and freshwater drilling fluids to 2110', steel surface casing will be run and cemented to surface from 2110' to protect any ground and surface waters. Closest water wells are about 1/4 of a mile to the northeast, 1/2 of a mile to the northwest, 5/8 of a mile to the west and 3/4 of a mile to the north from this location. Depth of this domestic, stock and irrigation water well range from 43' to 260'. Surface casing will be set well below the depth of these water wells to 2110' and cement to surface. No concerns.

Porous/permeable soils: No, sandy silty clay soils at the wellsite.

Class I stream drainage: No, Class I stream drainage.

Mitigation:

☐ Lined reserve pit

☒ Adequate surface casing

☐ Berms/dykes, re-routed drainage

☐ Closed mud system

☐ Off-site disposal of liquids (in approved facility)

☐ Other: _____

Comments: 2110' of surface casing is enough surface casing to cover Base Fox Hills Formation. Surface hole will be drilled with freshwater and freshwater drilling muds to 2110'. Steel surface casing will be run to 2110' and cemented to surface. Oil based invert drilling fluids will be recycled. Drill cuttings will be disposed in the lined pit. After the well has been completed, completions fluids will go to

a commercial Class II disposal. Lined pit will be closed with subsoil clays. No concerns.

Soils/Vegetation/Land Use

(possible concerns)

Stream crossings: None, anticipated.

High erosion potential: Yes, high erosion potential, moderate cut, 28.3' and moderate fill, up to 10.2', required.

Loss of soil productivity: None, location to be restored after drilling well, if well is nonproductive. If productive unused portion of drillsite will be reclaimed.

Unusually large wellsite: Yes, well site is very large, 550' X 350'.

Damage to improvements: Slight, surface use is grassland.

Conflict with existing land use/values: Slight.

Mitigation

☐ Avoid improvements (topographic tolerance)

☐ Exception location requested

☒ Stockpile topsoil

☐ Stream Crossing Permit (other agency review)

☒ Reclaim unused part of wellsite if productive

☐ Special construction methods to enhance reclamation

☒ Other: Requires DEQ General Permit for Storm Water Discharge Associated with Construction

Activity, under ARM 17.30.1102(28).

Comments: Access will be over existing county road, #126. A short access road will be constructed into this location, about 0.3 miles. Oil based drilling fluids will be recycled. Completion fluids will be hauled to a Class II commercial disposal. Drill cuttings will be buried in the lined reserve pit. No concerns.

Health Hazards/Noise

(possible concerns)

Proximity to public facilities/residences: Closest residences about 3/4 of a mile to the north and 1.5 miles to the southeast from this location. The town of Sidney, Montana is about 4 miles to the southeast from this location. Sidney Golf Course is about 2.12 miles to the southeast and the Sidney Airport is 2.25 miles to the southeast from this location.

Possibility of H2S: Slight

Size of rig/length of drilling time: Triple derrick drilling rig, 25 to 35 days drilling time.

Mitigation:

☒ Proper BOP equipment

☐ Topographic sound barriers

☐ H2S contingency and/or evacuation plan

☐ Special equipment/procedures requirements

☐ Other: _____

Comments: Adequate surface casing cemented to surface with working BOP stack should mitigate any problems.

Wildlife/recreation

(possible concerns)

Proximity to sensitive wildlife areas (DFWP identified): None identified.

Proximity to recreation sites: None identified.

Creation of new access to wildlife habitat: No

Conflict with game range/refuge management: No, no game range/refuge in the area.

Threatened or endangered Species: Threatened or endangered species identified by USFWS in Richland County are the Pallid Sturgeon, Whooping Crane, Interior Lease Tern and Piping Plover. Candidate species are the Sprague's Pipit and the Greater Sage Grouse. NH tracker website lists no species of

concern in this Township and Range.

Mitigation:

- ☐ Avoidance (topographic tolerance/exception)
- ☐ Other agency review (DFWP, federal agencies, DSL)
- ☐ Screening/fencing of pits, drillsite
- ☐ Other: _____

Comments: Private surface grasslands. No concerns.

Historical/Cultural/Paleontological

(possible concerns)

Proximity to known sites None identified.

Mitigation

- ☐ avoidance (topographic tolerance, location exception)
- ☐ other agency review (SHPO, DSL, federal agencies)
- ☐ Other: _____

Comments: Private surface grasslands. No concerns.

Social/Economic

(possible concerns)

- ☐ Substantial effect on tax base
- ☐ Create demand for new governmental services
- ☐ Population increase or relocation

Comments: Horizontal Bakken Formation oil well in a 1280 acre spacing unit. No concerns.

Remarks or Special Concerns for this site

Single lateral Bakken Formation development horizontal well 19,987' MD/10,414' TVD.

Summary: Evaluation of Impacts and Cumulative effects

No long term impacts expected. Some short term impacts will occur.

I conclude that the approval of the subject Notice of Intent to Drill (does/**does not**) constitute a major action of state government significantly affecting the quality of the human environment, and (does/**does not**) require the preparation of an environmental impact statement.

Prepared by (BOGC): /s/ Steven Sasaki

(title): Chief Field Inspector

Date: February 16, 2011

Other Persons Contacted:

Montana Bureau of Mines and Geology, GWIC website

(Name and Agency)

Richland County water wells

(subject discussed)

February 16, 2011

(date)

US Fish and Wildlife, Region 6 website

(Name and Agency)

ENDANGERED, THREATENED, PROPOSED AND CANDIDATE SPECIES MONTANA
COUNTIES, Richland County

February 16, 2011

(date)

Montana Natural Heritage Program Website

(Name and Agency)

Heritage State Rank= S1, S2, S3 in T23N R58E

(subject discussed)

February 16, 2011

(date)

If location was inspected before permit approval:

Inspection date: _____

Inspector: _____

Others present during inspection: _____